

# Memorandum

## Vermont Department of Public Service

**To:** Public Service Board

**From:** Robert Ide, Director - Energy Efficiency Division

**Subject:** Act 61 Implementation - CHP Responses

**Date:** December 20, 2005

**CC:** Email list

---

This memo contains responses of the Department of Public Service on questions regarding combined heat and power (“CHP”) circulated by the Public Service Board on November 18, 2005.

### **1. What should the next steps be regarding this topic?**

DPS supports the use of CHP and the exploration of CHP market potential in Vermont and its use where cost-effective. DPS believes that the next step on this topic is for it is able to engage in CHP market analysis activities, which at this time the Department believes it can do with resources it currently has available.

Exploration of CHP market potential by DPS will include, but is not limited to, the following:

- Analysis of existing Vermont-based CHP projects, developers, and industry experts, such as North Country Hospital, Green Mountain Coffee Roasters, Northern Power Systems, BERC - to name just a few.
- Analysis of results and lessons learned from other CHP and Distributed Generation (DG) programs, for example New York's DG/CHP Pilot Program.
- Utilization of DOE Distributed Energy Program resources, the Northeast Combined Heat and Power Regional Application Center (NERAC), and the Northeast Combined Heat and Power Initiative (NECHPI) consultancy and technical assistance services.
- Inventory of existing distribution utility potential work papers.

**2. Do existing studies provide sufficient information regarding issues associated with the development of CHP in Vermont?**

DPS believes that it should perform an in-depth review of existing information before answering this question and is not able to provide a definitive answer at this time. DPS is not aware of any existing comprehensive Vermont-specific studies, although regional information is available through the NERAC and NECHPI that looks at the opportunity for renewable CHP fuels. One of the opportunities related to renewable CHP fuels is that renewable portfolio standards, public benefit funding, and other renewable incentives are spurring investment in renewable fueled projects (consistent with objectives outlined in Act 61 and Act 74's Clean Energy Development Fund).

NECHPI has identified that renewable CHP fuels such as anaerobic digester gas, biomass (general, and gas), crop residues, landfill gas, wood, and wood waste have the potential to be used for economically-viable CHP power generation. Moreover, anaerobic digester gas, biomass gas, landfill gas, and wood waste offer 32 GW in economic potential for U.S. CHP projects.

NECHPI notes that although there is significant economic potential for CHP (excluding renewable energy credits and net metering), more R&D in this area is required generally.

All these issues are particularly relevant to Vermont, and a consolidation and analysis of existing information is necessary to draw an informative conclusion regarding Vermont's CHP market. A Vermont analysis should consider suitable installation sites, dedication to the host facility, system reliability issues, and the economic viability of ratepayers' assistance.

Renewable CHP fuels would be the fuel-of-choice by DPS; however, we recognize that continued advancement of CHP in Vermont can be accomplished using both renewable and/or non-renewable resources.

**3. If existing studies do not provide sufficient information regarding issues associated with the development of CHP in Vermont, should a new study be performed? If a new study should be performed, what should be included in the study (for example, analysis of technical potential, analysis of market barriers, literature review, other items)?**

As outlined in responses to questions 1 and 2 above, existing market and economic data should be consolidated and analyzed in the first instance, with all the topics of technical potential, market barriers (and opportunities), literature review,

economic cost/benefit analysis included. A determination regarding whether or not additional studies are required should be made after existing information is reviewed.

**4. Should a pilot program be designed prior to the completion of any studies that may be performed? If so, what should the pilot program look like? Should any contractor hired to perform a study of issues associated with CHP in Vermont also be asked to propose a design for a pilot program?**

Many CHP projects already exist in Vermont so the creation of a pilot program does not appear to be necessary. In fact, the CHP project at North Country Hospital - a gasifier using wood chips provided primarily from the Hospital's neighbor, Columbia Forest Products - has been attracting local and national attention, including many visits from engineers and the business community. Because of its CHP project, the Hospital anticipates saving as much as \$328,000 per year - more than the \$248,000 originally anticipated when the CHP project began because of the rising cost of fuel oil. The Hospital has stated that without the CHP unit, their rising heating and electrical bills would have been ultimately passed onto the patients in the form of an increase in the cost of providing medical care.

In addition, other successful Vermont-based CHP projects exist, including one at Green Mountain Coffee Roasters where Northern Power Systems worked in conjunction with Mohawk Energy to custom engineer and install a grid-connected, on-site CHP system. The system has resulted in a reduction of utility power costs during peak use periods, and have provided reliable back-up power and incorporated cost-saving heat recovery for hot water and space heating.

Lastly, the Vermont-based Biomass Energy Resource Center (BERC) has worked on two industrial CHP projects in Massachusetts and serves as an additional source of local expertise.

**5. Should the Board authorize Efficiency Vermont to provide technical assistance to customers considering CHP now (that is, prior to the establishment of a CHP program)?**

Before answering this question, a first step should be for the Board to ascertain how Efficiency Vermont would provide that technical assistance, the associated staffing requirements, associated costs, as well as the current level of professional expertise available to provide technical assistance to Vermont ratepayers. Once this information is known, the Department will be in a better position to make a recommendation, and the

Board to make a decision. If the Board determines that Efficiency Vermont is the best resource to provide technical assistance, the related question of how to pay for these services should be explored. A financial plan should look closely at Vermont policy initiatives emanating from Act 61 and Act 74 related to renewable resources, with potential funding to come from the Clean Energy Development Fund, other funds available as a result of the 2005 Energy Policy Act, and potential funds available through the venture capital market from investors interested in tradable renewable energy certificates. It is important to consider these potential avenues of funding first rather than simply assuming use of the energy efficiency charge.

DPS recommendations will focus on maximum return on investment from the various funds identified above, while minimizing the impact upon ratepayers as a whole.